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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/549,888	09/16/2005	Hajime Kando	36856.1371	7172

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EXAMINER

SAN MARTIN, JAYDI A

ART UNIT	PAPER NUMBER
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2834

NOTIFICATION DATE	DELIVERY MODE
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01/03/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

JKEATING@KBIPLAW.COM
uspto@kbiplaw.com.

Office Action Summary

Application No.

10/549,888

Applicant(s)

KANDO, HAJIME

Examiner

Jaydi A. San Martin

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Specification

1. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 13-¹⁴~~14~~ are rejected under 35 U.S.C. 103(a) as being unpatentable over Isobe (JP 07212174) in view of Irino (IRINO, T. et al. Optimized Stoneley Wave Device by Proper Choice of Glass Overcoat -NPL document provided by applicants).

Isobe discloses boundary acoustic wave device comprising: a first medium layer (LiTaO₃) and a second medium layer (SiO₂) arranged such that a boundary acoustic wave propagates along a boundary between the first medium layer and the second medium layer; wherein a sound velocity of the second medium layer is lower than a sound velocity of the first medium layer, and a thickness of the second medium layer is at least about 3λ .

However, Isobe fails to disclose the thickness of the second medium layer being at least 7λ .

Irino discloses a similar embodiment wherein the thickness of the second layer is preferably a high value for exiting the medium. Specifically Irino teaches: a person skilled in the art will gather that the boundary acoustic wave (Stoneley wave) will only be excited when the thickness of the medium layer (SiO_2) is greater than three times the wavelength. Therefore, the limitation of the SiO_2 layer having a thickness greater than 7λ is being anticipated by Irino.

3. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Irino and Isobe as applied to claims 12-13 above, and further in view of Itakura (US 2003/011281).

The combination of Irino and Isobe discloses the claimed invention as explained above, but fails to disclose the use of reflectors being provided at the boundary between the first medium layer and a second medium layer.

Itakura discloses the use of grating reflectors (paragraph [0059]) for creating standing waves.

Therefore, it would have been obvious at the time of the invention was made to use grating reflectors as disclosed by Itakura to reflect waves generated by the interdigital electrodes and create a standing wave.

4. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Irino and Isobe as applied to claims 12-13 above, and further in view of Ogawa (WO 98/052279)

The combination of Irino and Isobe discloses the claimed invention as explained above, but fails to disclose the invention comprising a third medium layer having a sound velocity less than the sound velocity of the first medium layer and the second medium layer is provided between the first medium layer and the second medium layer and defines a boundary layer along which the boundary acoustic wave propagates.

Ogawa discloses the use of a third layer made of Si that enables elastic wave excited by the idts to be confined exhibiting superior characteristics and improved performance.

Therefore, it would have been obvious at the time of the invention was made to use a third layer made of Si to confine the elastic waves generated by the interdigital electrodes.

5. Claims 17-24 and 26-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Isobe in view of Wakino (US 4388600).

Isobe discloses Isobe discloses boundary acoustic wave device comprising: a first medium layer (LiTaO_3) and a second medium layer (SiO_2) arranged such that a boundary acoustic wave propagates along a boundary between the first medium layer and the second medium layer; wherein a sound velocity of the second medium layer is lower than a sound velocity of the first medium layer.

Wakino teaches the use of grooves formed on the surface of a layer in a piezoelectric acoustic wave device. Wakino's invention has the purpose of suppressing unnecessary spurious response due to the reflection of waves.

Therefore, it would have been obvious at the time of the invention was made to form grooves on the surface of one of the layers to suppress unnecessary spurious response due to the reflection of waves.

Regarding the limitations of the depth of the grooves/protrusions, Wakino teaches the use of different depths depending on the desired characteristics of the system. It would have been obvious to use different depths or thicknesses as necessitated by the specific requirements of the particular application, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only ordinary skill in the art. *In re Aller*, 105 USPQ 233.

6. Claim ~~26~~⁴ is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Wakino and Isobe as applied to claims 17-24 above, and further in view of Irino.

As explained above, the combination of Wakino and Isobe discloses the claimed invention. However, the combination fails to disclose the thickness of the second medium layer being at least 7λ .

Isobe discloses the importance of selecting the thickness of the second layer being at least 3λ in order to excite the acoustic wave.

Therefore, it would have been obvious at the time of the invention was made to select the thickness of the second layer to be at least more than 3λ including at least 7λ in order to be able to excite an acoustic wave.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

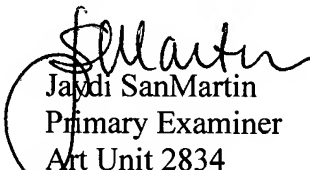
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jaydi A. San Martin whose telephone number is 571-272-2018. The examiner can normally be reached on M-Th 9-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren E. Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Jaydi SanMartin
Primary Examiner
Art Unit 2834

12/23/07